

ABSTRACT

A photonic crystal drop filter apparatus and a method for tuning a photonic crystal drop filter. The photonic crystal drop filter has a photonic crystal having first waveguide for transmitting light having a frequency within a bandgap of the photonic crystal, and a second waveguide. The second waveguide is connected to the first waveguide by a resonant cavity for extracting at least one wavelength of the light transmitted by the first waveguide and redirecting the extracted light to the second waveguide. A tuning device is included in the apparatus to tune the wavelength of the extracted light over a full range of wavelengths. The apparatus is particularly suitable as an extraction device for optical communications systems such as a WDM communications system wherein it is necessary to extract one or more carrier signals from a plurality of carrier signals.